The New Trigger Inhibit System

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Ace Training

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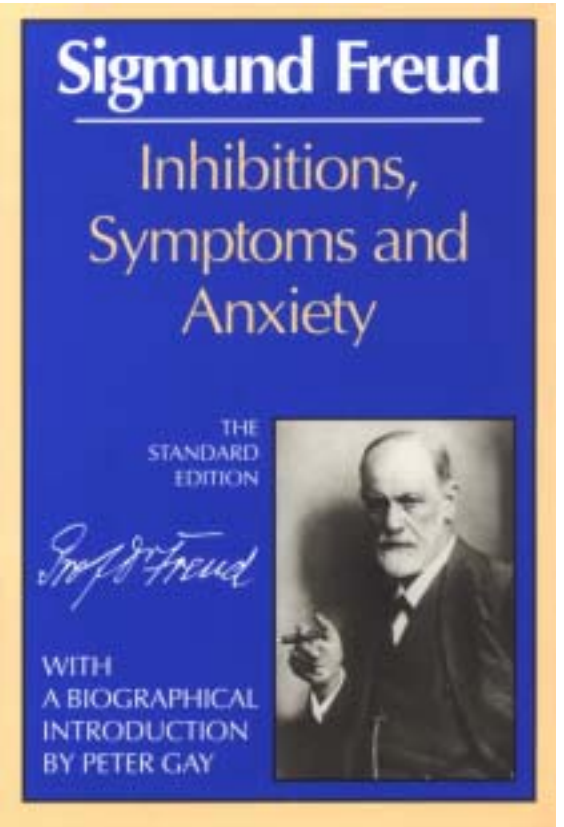
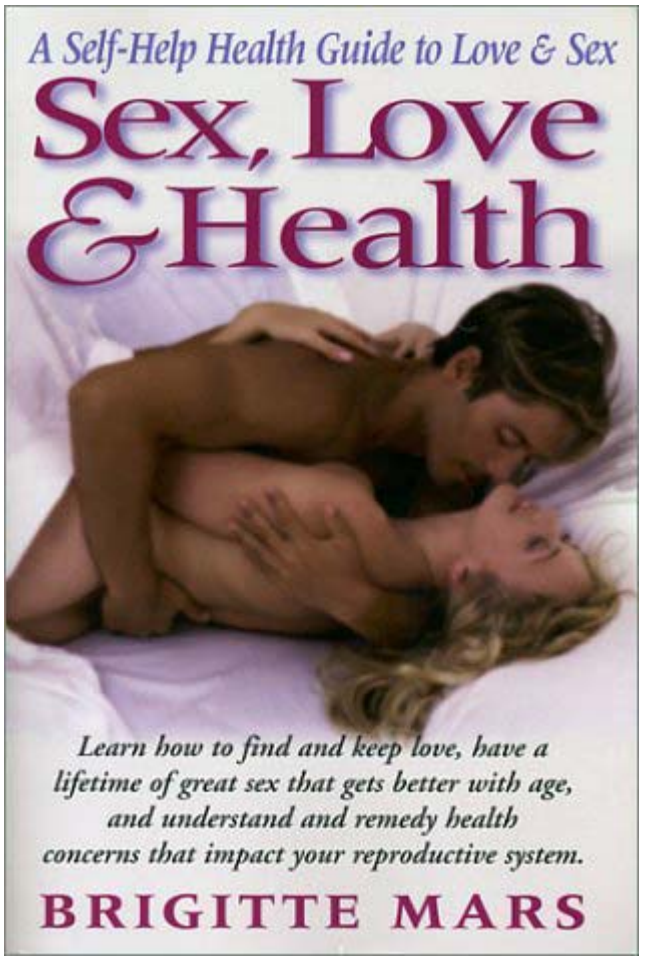


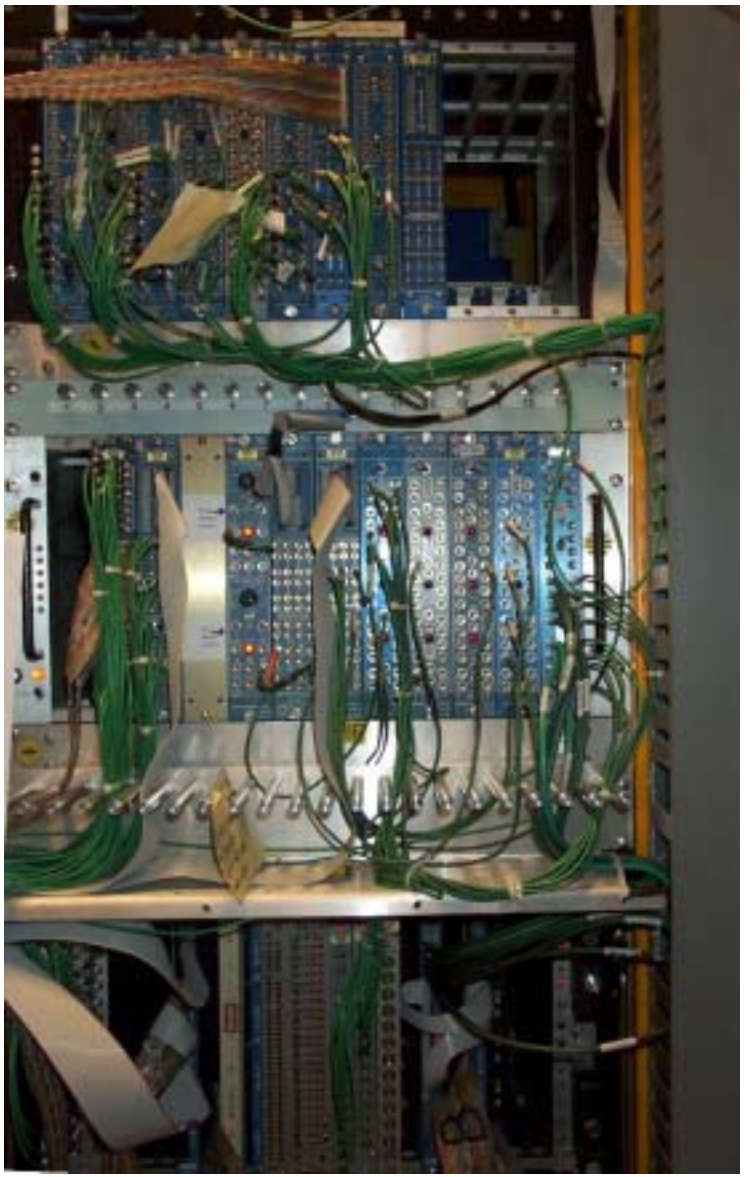
Why be Inhibited?

- **Inhibit system insures good data**
  - **Stop taking triggers quickly and automatically when a problem is detected**
    - **Example: HV trip**
  - **Start as soon as detector is in Good state**

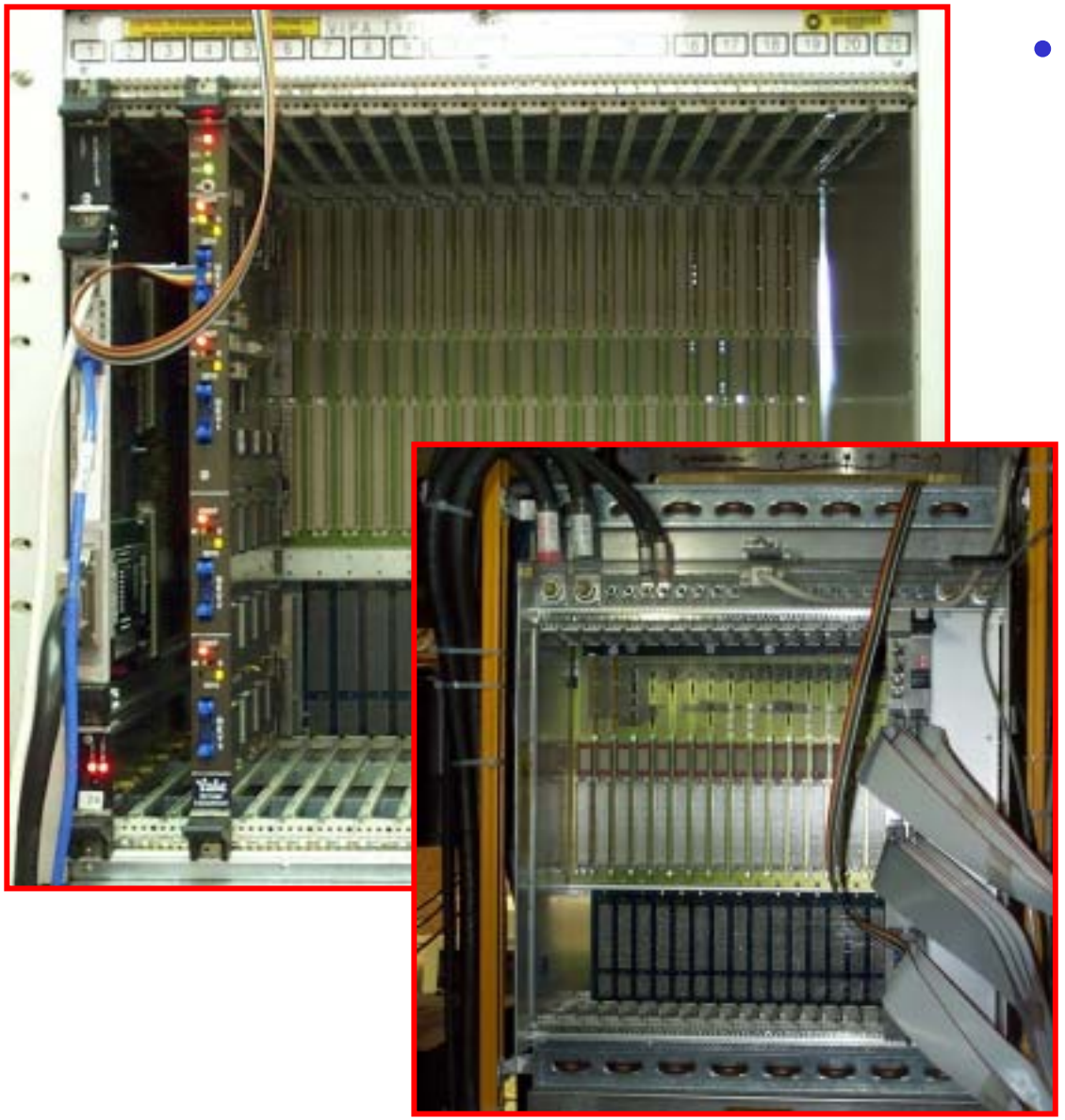


Out with the old

- **Three crates of NIM and Camac logic**
  - Familiar to old guys like me
  - Not so easy to maintain



In with the new



- **CDF Return XPT card**
  - **New transition module**
  - **160 inputs from patch panel in 1RR12D**
  - **Flexible!**
  - **Maintained by other people!!!!**

Overview

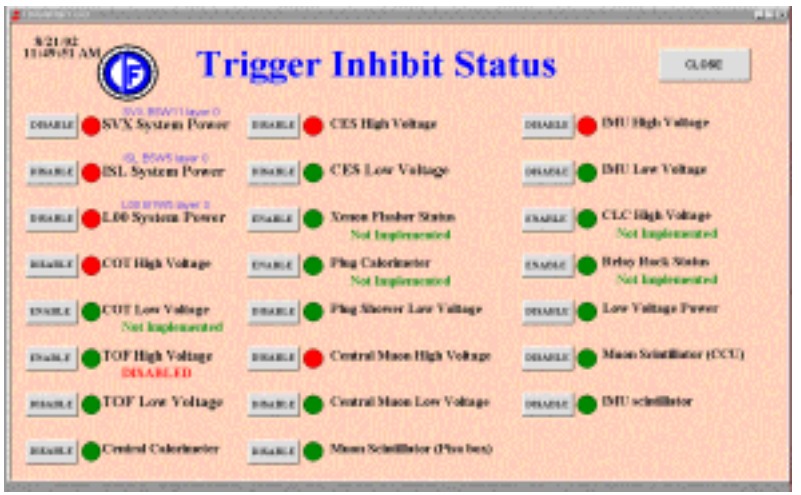
- 160 possible inputs
  - Each can be masked in case of problems that can't be resolved quickly
    - Masking means data are suspect
- Two classes of inputs:
  - Signals from iFIX and slow-control PC
    - Includes trips, but takes seconds(?) to reach inhibit
    - One signal per sub-system
    - Inhibit if not OK for data-taking
  - Fast trip signals from power supplies
    - 1 signal per supply
    - msec time scale
    - minimize chance of corrupt data
      - Most common source of inhibit

Operational Considerations

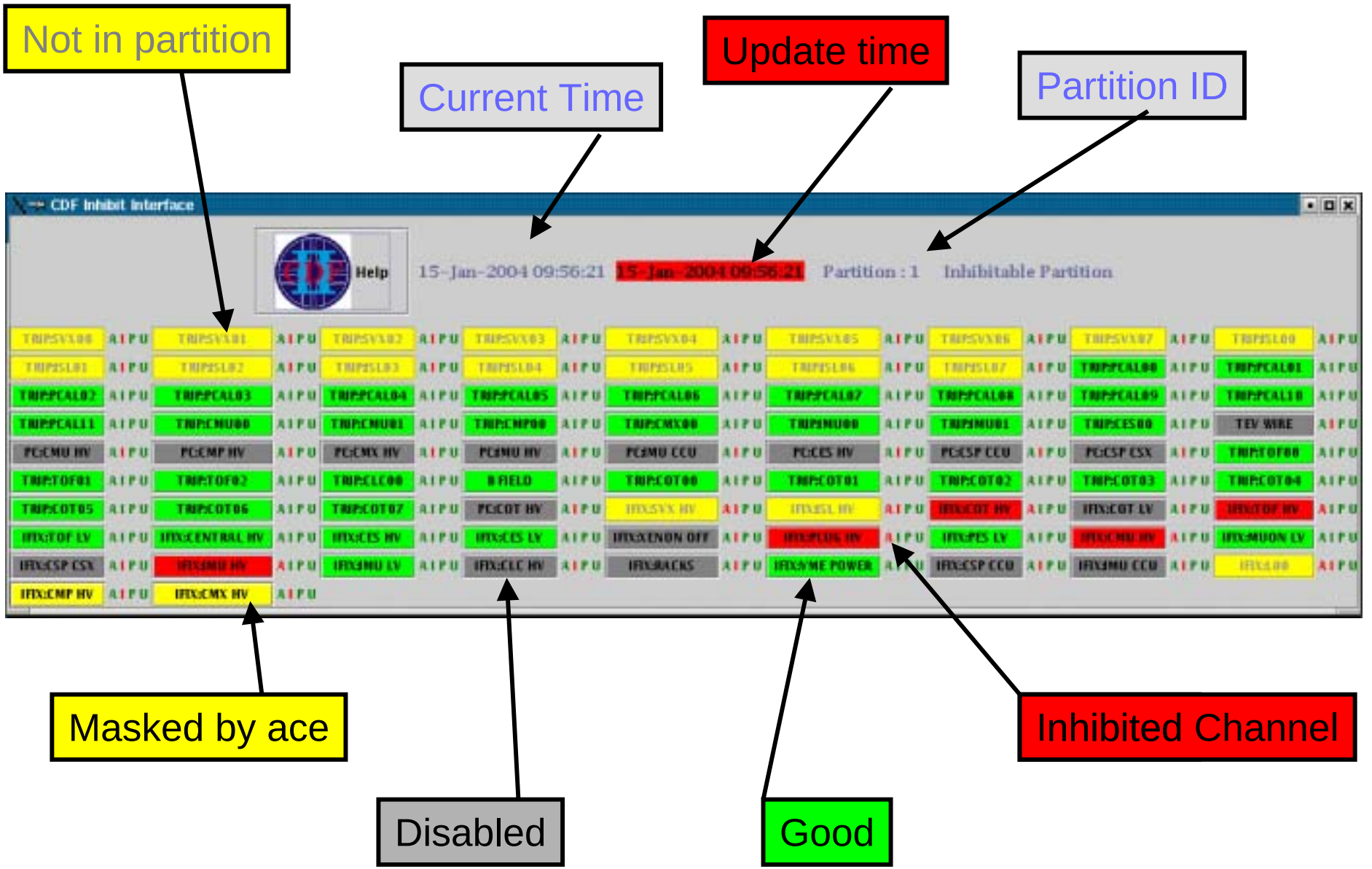
- HV trips are most common source of inhibit
  - Fast trip comes from power supply
  - PC then detects
  - Supply reset, but PC still holds inhibit during ramp
- Different time scales
  - Caen systems and COT have fast response
  - PSM (Low Voltage) polls many supplies
    - Delayed response
  - Still no software inhibit for CLC, CPR, CCR
    - Need to PAUSE run on trips for these systems
- PC signals are new
  - Used by a few systems.
- Inhibits are for PHYSICS table runs with beam or COSMICS to tape
  - Otherwise use the global disable in Run Control

Control Software

- GUI display above ace console
- One icon for each inhibit input
- Use GUI to control mask
  - Lock out changes when run is active in partition that has booked inhibit VME crate
- Don't use old mask function in iFix!!!
  - This page has been deleted



Inhibit Display



Operation

- **Partition**
  - InhibitDisplay program checks if the partition owns b0inh00
  - If so, masks inhibits for inputs not associated with components in the partition
    - These masks can’t be changed in GUI
  - Shift crew can now mask inhibits if we need to run with a **BAD** system
- **Run**
  - Changes to mask are disabled
- **End**
  - Changes to mask are allowed

Summary of iFix Signals

Channel	Tag	Computer
1	SVX_HV	svxiicon
2	ISL_HV	svxiicon
3	COT_HV	cot2
4	COT_LV	cot2
5	TOF_HV	tof1
6	TOF_LV	tof1
7	CENTRAL_HV	pisabox
8	CES_HV	muon3
9	CES_LV	voltman
10	XENON_OFF	pisabox
11	PLUG_HV	cdfephv
12	PES_LV	voltman
13	MUON_HV	muon3
14	MUON_LV	voltman
15	CSP_CSX	cdfccu
16	IMU_HV	muon3
17	IMU_LV	voltman
18	CLC_HV	clc
19	RACKS	cdf_s3
20	VME_POWER	voltman
21	CSP_CCU	cdfccu
22	IMU_CCU	cdfccu
23	L00_HV	svxiicon

Response to Problems

- **Inhibit is a GIGO system**
  - **Detector experts responsible for inputs**
    - **If you get an inhibit, and you don't understand why: Call the detector experts!**
    - **If you have a problem and you didn't get an inhibit, but you think you should: Call the detector experts!**
    - **If they think they are sending the correct info but the inhibit is behaving badly, call me.**
- **If an inhibit is masked, the associated system will be considered BAD for that run.**
  - **Masking an inhibit is a stop-gap measure while things are repaired.**

Inject Humor

- **Run 1 CDF Anthem**
  - Melody Notre Dame fight song

Fight, fight, fight for old CDF.
What is the matter, have you gone deaf?
Hear the DecTalk calling thee:
"Event timeout on machine three."

Whether the gas-gain be green or red,
We will take data till we're dead.
While our pedestals go shift of to infinity.